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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/722,923 | 11/24/2003 | Roger Bruce Harding | 01313/100F022-US3 | 1897 |

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| EXAMINER | |
|---|---|
| WHITE, EVERETT NMN | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 1623 | |

DATE MAILED: 11/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/722,923 | HARDING ET AL. | |
| | Examiner | Art Unit | |
| | Everett White | 1623 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *14 August 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-50 and 55-73* is/are pending in the application.

4a) Of the above claim(s) *3,6,8,44,45,47-50,55-70 and 72* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4,5,7,9-43,46 and 71* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3/18/04 & 2/5/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

1. Applicant's election with traverse of Group I (Claims 1-46 and 71-73) in the reply filed on August 14, 2006 is acknowledged. The traversal is on the ground(s) that examination of all the claims together would not be a serious burden on the Examiner. This is not found persuasive because these inventions are distinct for the reasons given in the Office Action filed June 27, 2006. The different inventions have acquired a separate status in the art as shown by their different classification, the search required for Group II is not required for Groups I and III, and the inventions have acquired a separate status in the art because of their recognized divergent subject matter. Furthermore, the inventions set forth numerous species of cellulose ethers, numerous types of cellulose pulp, and a large number of claims, which would be a very serious burden for the Examiner if the claims were not restricted.

The requirement is still deemed proper and is therefore made FINAL.

### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 20, 24-26 and 71 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In Claims 20 and 71, the metes and bounds of the term "cellulose III" cannot be determine because the term has not been particularly pointed out or distinctly articulated in the claims.

In Claims 24-26 the term "Rx" lacks meaning absent further indication toward what Rx is in reference to because the identity of Rx would be difficult to describe and the metes and bounds of Rx that Applicants regard as the invention cannot be sufficiently determined since the term has not been defined in the claims or specification.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 10, 11, 14-19, 35-43, 46 and 71 are rejected under 35 U.S.C. 102(b) as being anticipated by Ohnaka et al (US Patent No. 4,063,018).

Applicants claim a method of preparing cellulose ethers comprising the steps of:

(a) obtaining mercerized and recovered cellulose pulp; and

(b) converting the mercerized and recovered cellulose pulp into the cellulose ethers,

wherein the mercerized cellulose pulp in step (a) was mercerized with a cellulose II mercerizing agent, and when the cellulose ether prepared is hydroxyethyl cellulose and the cellulose pulp is southern softwood kraft, the mercerized and recovered cellulose pulp has at least one of the following properties:

(i) a TAPPI 230 om-89 viscosity less than 10.4 cP or greater than 11.2 cP,

(ii) a solubility in 10% sodium hydroxide as determined by ASTM D 1696-95 of greater than 2.3%,

(iii) a solubility in 18% sodium hydroxide as determined by ASTM D 1696-95 of greater than 1.3%,

(iv) not been prehydrolyzed, or

(v) not been bleached with elemental chlorine.

The Ohnaka et al patent shows that the claimed process of preparing cellulose ethers is known in the art by disclosing under "Comparative Examples 1 to 3" in column 7 and column 8, 1st paragraph, a process wherein sheet-like pulp is added to an aqueous solution of isopropyl alcohol under agitation to pulverize the pulp and to form a slurry. An aqueous solution of sodium hydroxide was added which was further agitated to obtain alkali cellulose (alkali mercerization). A solution of monochloroacetic acid was added in order to conduct etherification. After completion of the reaction, the reaction

mixture was neutralized with acetic acid. A liquid was removed by a centrifugal separator, washed two times with a 75% aqueous solution of methanol, followed by liquid removal and drying, to obtain carboxymethylcellulose (CMC). The alkali mercerization and etherification of the Ohnaka et al patent anticipate steps (a) and (b) of instant Claim 1 since the sodium hydroxide of the Ohnaka et al patent anticipate the cellulose II mercerizing agent of the instant claims (see page 7, line 4 of the instant specification wherein NaOH is described as a suitable mercerizing agent). The description of pulverizing the pulp in the Ohnaka et al patent anticipate the subject matter of instant Claims 10 and 35 which discloses the mercerized and recovered cellulose pulp as a cellulose floc (see page 11, 4th paragraph of the instant specification wherein a cellulose floc is produced by grinding, dicing or shredding a cellulose pulp). See column 7, lines 30 and 31 of the Ohnaka et al patent, wherein the reaction mixture is neutralized, which anticipate instant Claims 16 and 17. See column 8, lines 6 and 7 of the Ohnaka et al patent, wherein the sodium hydroxide is in the form of an aqueous solution when added to the slurry containing pulp, which anticipate the subject matter of instant Claim 15. In column 8, 1st paragraph, the Ohnaka et al patent discloses pulverization of the pulp (to obtain a cellulose floc) followed by mercerization and neutralization, which anticipate the subject matter of instant Claim 19. The description disclosed in column 8, 1st paragraph, of a sheet-like pulp being pulverized (to obtain a cellulose floc), treatment with sodium hydroxide (to form alkali cellulose) and etherified to obtain carboxymethylcellulose anticipate the subject matter of instant Claims 36-43 and 71.

### *Claim Rejections - 35 USC § 103*

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 2, 4, 5, 7, 9, 12, 13 and 20-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohnaka et al (US Patent No. 4,063,018) in view of Mansikkamaki et al (EP 879,827 A2).

Applicants claim a method of preparing cellulose ethers using various types of cellulose pulp, wherein carboxymethylcellulose and sulfite pulp was selected by Applicants for the Election of Species requirement to elect a single disclosed species of the listed cellulose ethers and cellulose pulps.

The information disclosed in the Ohnaka et al patent in the 102(b) rejection is incorporated into the current rejection.

The instantly claimed method of preparing cellulose ethers differs from the Ohnaka et al patent by claiming specific types of cellulose pulp in the dependent claims.

The Mansikkamaki et al publication shows that the preparation of carboxy-methylcellulose from bleached sulphite softwood pulp is well known in the art (see page 2, line 14 of the Mansikkamaki et al publication). The sulphite softwood pulp embraces the sulphite and softwood pulp disclosed in instant Claims 2, 4, 5, 7 and 9.

The additional limitation disclosed in instant Claims 12, 13, and 20-34 of the claimed method regarding the amount of sodium hydroxide or mercerizing agent used in the method, the Rx value of the cellulose pulp, the viscosity of cellulose pulp, solubility of the pulp in sodium hydroxide, and alpha cellulose content of the cellulose pulp have been noted, but do not disclose reasons for indicating patentable subject matter.

One of ordinary skill in this are would be motivated to combine the teachings of the Ohnaka et al patent with the teachings of the Mansikkamaki et al publication since both patents disclose preparation of carboxymethylcellulose.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the cellulose pulp used in the process for preparing carboxymethylcellulose of the Ohnaka et al patent with a sulfite pulp in view of the recognition in the art, as evidenced by the Mansikkamaki et al publication, that the use of bleached sulphite softwood pulp (a sulfite pulp) results in the preparation of carboxy-methylcellulose which is void of contamination (clean).

8. Claims 3, 6, 8, 44, 45, 72 and 73 are withdrawn from consideration since these claims are drawn to cellulose ethers and cellulose pulp other than carboxymethyl-cellulose and sulfite pulp, which are the elected species selected by Applicants due to the Election of Species requirement.

9. Claims 47-50 and 55-70 are drawn to non-elected inventions and are withdrawn from consideration.

***Summary***

10. Claims 1, 2, 4, 5, 7, 9-43, 46 and 71 are rejected; Claims 3, 6, 8, 44, 45, 72 and 73 are withdrawn from consideration due to being drawn to non-elected species; Claims 47-50 and 55-70 are withdrawn from consideration due to being non-elected inventions; and Claims 51-54 were previously canceled.

***Examiner's Telephone Number, Fax Number, and Other Information***

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Everett White whose telephone number is 571-272-0660. The examiner can normally be reached on 9:30 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shaojia A. Jiang can be reached on 571-272-066127. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

E. White

E. White

10/26/06

Shaojia A. Jiang
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